

# Written Examination Techniques

## 1. Problems keeping tests from being accurate measures of student's achievement.

- A. Tests include too many questions measuring only knowledge of facts.  
-Does test content reflect the material discussed in class?
- B. Too little feedback is provided. For a test to be a learning experience, students must be provided with prompt feedback regarding which of their answers were correct or incorrect.
- C. The questions are often ambiguous and unclear. Ambiguous answers often result when instructors put off writing test questions until the last minute. Careful editing and an independent review of the test items can help to minimize this problem.

## 2. Planning the test

- What are the teaching objectives?  
Knowledge, Comprehension, Application, Analysis, Synthesis, Evaluation
- To ensure a representative sample of content and cognitive objectives on the test a table of specifications may be used.

Content (%)	Knowledge	Comprehension	Application	Total (%)

## 3. The test format:

Factors to consider:

- What is to be measured?
- Compare and contrast an idea and give support to answer, essay
- Objective-type items can be used quite effectively to measure high level cognitive objectives.
- The size of the class
- Time Available to Prepare and Score Test

## MULTIPLE CHOICE ITEMS

Many users regard the multiple choice item as the most flexible and probably the most effective of the objective item types. A multiple-choice item consists of two parts: (1) the stem, which presents a specific problem to the test taker, and (2) a list of possible solutions or answers called distracters. The stem may be written either as a question or as an incomplete statement. There should be only one correct or best answer while the other three or four options serve as distracters.

### 1. Strengths of Multiple-Choice Items

- Versatility in measuring all levels of cognitive skills.
- Permit a wide sampling of content and objectives.
- Provide highly reliable test scores.
- Can be machine-scored quickly and accurately
- Reduced guessing factor compared with true-false items.

### 2. Limitations of Multiple Choice Items

- Difficult and time-consuming to construct.
- Depend on student's reading skills and instructor's writing ability
- Ease of writing low-level knowledge items leads instructors to neglect writing items to test higher-level thinking.
- May encourage guessing (but less than true-false)

### 3. Writing Multiple-Choice Items

The challenge is to write questions that test a significant concept, that are unambiguous, and that don't give test-wise students an advantage

- A. The stem should fully state the problem and all the qualifications. To make sure that the stem presents a problem, always include a verb in the statement.
- B. Concentrate on writing items that measure students' ability to comprehend, apply, analyze, and evaluate as well as recall.
- C. Include words in the stem that would otherwise be repeated in each option.
- D. Eliminate excessive wording and irrelevant information in the stem.
- E. Make sure there is only one correct or best response.
- F. Provide a minimum of three, but not more than five, plausible and attractive options for each item.
- G. Make all the options for an item approximately homogeneous in content, form, and grammatical structure. Increasing the homogeneity of the content among the options can increase the difficulty of an item. (Difficulty of a test should not be based on inclusion of obscure content.).
- H. Avoid the use of the all-of-the-above and none-of-the-above options. The problem with the "all-of-the-above" as an option is that it makes the item too easy. If students can recognize at least one incorrect option, they can eliminate "all of the above" as a viable option. On the other hand, if they can recognize at least two correct options, then they know that "all of the above" is the correct answer. Furthermore, research shows that when "all of the above" is used as a distracter it is too often the correct response. Students are quick to pick up on this clue.  
"None of the above", should be used only when absolute standards of correctness can be applied, such as in math, grammar, spelling, geography, historical dates, and so on. Otherwise, students can often argue about the correctness of one of the other options.
- I. Avoid making the correct answer markedly longer or shorter than the other options.
- J. If there is a logical sequence in which the alternatives can be arranged, use that sequence.

- K. Use negatively stated stems sparingly. When used, call attention to the negative word by underlining and/or capitalizing.
- L. Randomly distribute the correct response among the alternative positions throughout the test. That is, have approximately the same proportions of A's, B's, C's, D's, and E's as the correct response.
- M. Watch for specific determiners such as "all", "always", "never" which are more likely to be in incorrect options. Others like "usually" and "sometimes" are more likely to be in the keyed response.
- N. State items so there can be only one interpretation of their meaning.

#### **4. Suggestions for Writing Multiple-Choice Items Which Measure Higher Objectives**

It is difficult and time-consuming to write multiple-choice items that measure the higher thinking skills. The item writer has to be creative in order to develop challenging questions. The following suggestions may provide some ideas for writing these kinds of questions.

- A. Present practical or real-world situations to the students. These problems may use short paragraphs describing a problem in a practical situation. Items can be written which call for the application of principles to the solution of these practical problems, or the evaluation of several alternative procedures.
- B. Present actual or contrived quotations and ask for the interpretation or evaluation of them.
- C. Use charts, tables, or figures that require interpretation.

### **TRUE-FALSE ITEMS**

The true-false item typically presents a declarative statement that the student must mark as either true or false. Instructors generally use true-false items to measure the recall of factual knowledge such as names, events, dates, definitions, etc. But this format has the potential to measure higher levels of cognitive ability, such as comprehension of significant ideas and their application in solving problems.

#### **1. Strengths of True-False Items**

- A. They are relatively easy to write and can be answered quickly by students. Students can answer 50 true-false items in the time it takes to answer 30 multiple-choice items.
- B. They provide the widest sampling of content per unit of time.

#### **2. Limitations of True-False Items**

- A. The problem of guessing is the major weakness. Students have a fifty percent chance of correctly answering an item without any knowledge of the content.
- B. Items are often ambiguous because of the difficulty of writing statements that are unequivocally true or false.

#### **3. Writing True-False Items**

- A. Test significant content and avoid trivial statements.
- B. Write items that can be classified unequivocally as either true or false.
- C. Avoid taking statements verbatim from textbooks.
- D. Include only a single major point in each item.

- E. Avoid trick questions
- F. Try to avoid using words like “always”, “all”, or “never” which tend to make the statement false; words like “usually”, “often”, “many”, usually make the statement true.
- G. Avoid using negatively worded statements
- H. Put the items in a random order so as to avoid response patterns that could serve as clues (such as T,T,F,T,T,F,T)
- I. Try to avoid long drawn-out statements or complex sentences with many qualifiers.
- J. Avoid making items that are true consistently longer than those that are false.
- K. Use slightly more false items than true items. False items tend to discriminate more highly among students than do true items.

## **MATCHING**

A matching exercise typically consists of a list of questions or problems to be answered along with a list of responses. The examinee is required to make an association between each question and a response. Matching items permit one to cover a lot of content in one exercise making them an efficient way to measure. It is difficult, however, to write matching items that require more than simple recall of factual knowledge.

### **1. Guidelines for Constructing Matching Items**

- A. Use homogeneous material in each list of a matching exercise. Mixing events and dates with events and names of persons, for example, makes the exercise two separate sets of questions and gives students a better chance to guess the correct response. For example, if one stem were “President of U.S. during World War II”, the student could ignore all the responses other than names. Using homogeneous material requires students to distinguish or discriminate among things that make for a more challenging task.
- B. Include directions that clearly state the basis for matching. Inform students whether or not a response can be used more than once and where answers are to be written.
- C. Put the problems or the stems (typically longer than the responses) in a numbered column at the left, and the response choices in a lettered column at the right. Because the student must scan the list of responses for each problem, one should keep the responses brief. This saves reading time for the student.
- D. Always include more responses than questions. If the lists are the same length, the last choice may be determined by elimination rather than knowledge.
- E. Arrange the list of responses in alphabetical or numerical order if possible in order to save reading time.
- F. All the response choices must be plausible, but make sure that there is only one correct choice for each stem or numbered questions.

## COMPLETION ITEMS

The completion format requires the student to answer a question or to finish an incomplete statement by filling in a blank with the correct word or phrase. The advantages of completion items are (1) they provide a wide sampling of content; and (2) they minimize guessing compared with multiple-choice and true-false. The limitations are they (1) rarely can be written to measure more than simple recall of information; (2) are more time consuming to score than other objective types; (3) are difficult to write so there is only one correct answer and no irrelevant clues.

### 1. Guidelines for Writing Completion Items

- A. Omit only significant words from the statement, but do not omit so many words that the statement becomes ambiguous.  
Poor: The Constitutional Convention met in \_\_\_\_\_ in \_\_\_\_\_.  
Better: The Constitutional Convention met in the city of \_\_\_\_\_ in 1787.
- B. Write completion items that have a single correct answer, if possible  
Poor: Abraham Lincoln was born in \_\_\_\_\_.  
*There are several legitimate answers; Kentucky, 1809, February, a log cabin, etc...*  
Better: Abraham Lincoln was born in the state of \_\_\_\_\_.
- C. Use blanks of the same length throughout the test so that the length is not a clue.
- D. Avoid grammatical clues to the correct response. For example, an indefinite article is required before a blank, use a/an so that the student doesn't know if the correct answer begins with a vowel or a consonant.
- E. If possible, put the blank at the end of a statement rather than at the beginning. Asking for a response before the student understands the intent of the statement can be confusing and may require more reading time.
- F. Avoid taking statements directly from the text.

## ESSAY ITEMS

### 1. Strengths of Essay Items

- A. Essay items are an effective way to measure higher level cognitive objectives. They are unique in measuring students' ability to select content, organize and integrate it, and present it in logical prose.
- B. They are less time-consuming to construct.
- C. They have a good effect on students' learning. Students do not memorize facts, but try to get a broad understanding of complex ideas, to see relationships, etc...
- D. They present a more realistic task to the student. In real life, questions will not be presented in a multiple-choice format, but will require students to organize and communicate their thoughts.

### 2. Limitations of Essay Items

- A. Because of the time required to answer each question, essay items sample less of the content.
- B. They require a long time to read and score.

- C. They are difficult to score objectively and reliably. Research shows that a number of factors can bias the scoring:
- Different scores may be assigned by different readers or by the same reader at different times.
  - A context effect may operate; an essay preceded by a top quality essay receives lower marks than when preceded by a poor quality essay.
  - The higher the essay is in the stack of papers, the higher the score assigned
  - Papers that have strong answers to items appearing early in the test and weaker answers later will fare better than papers with the weaker answers appearing first.
  - Scores are influenced by the expectations that the reader has for the student's performance.
  - Scores are influenced by quality of handwriting, neatness, spelling, grammar, vocabulary, etc....

### **3. Writing Good Essay Exams**

- A. Formulate the questions so that the task is clearly defined for the student. Use words that "aim" the student to the approach you want them to take. *Clearly stated questions not only make essay tests easier for students to answer, but also make them easier for instructors to score.*
- B. In order to obtain a broader sampling of course content, use a relative large number of questions requiring shorter answers.
- C. Avoid the use of optional questions on an essay test. Indicate for each question the number of points to be earned for a correct response. If time is running short, students may have to choose which questions to answer.
- D. Avoid writing essay items that only require student to demonstrate certain factual knowledge. Factual knowledge can be measured more efficiently with objective-type items.

### **4. Scoring Essay Tests**

- A. The major task in scoring essay tests is to maintain consistency, to make sure that answers of equal quality are given the same number of points. There are two approaches.
- B. Analytic: Before scoring, one prepares an ideal answer in which the major components are defined and assigned point values. One reads and compares the student's answer with the model answer. If all the necessary elements are present, the student receives the maximum number of points. Partial credit is given based on the elements included in the answer.
- C. Holistic: This method involves considering the student's answer as a whole and judging the total quality of the answer based on certain criteria that you develop.